NetXpert 1400

Cable Qualifier

psiber

GIGABIT LAN QUALIFIER WITH NETWORK DIAGNOSTIC TOOL

The NetXpert 1400 provides a complete solution for cable qualification and troubleshooting of active networks, enabling rapid, simple verification and documentation of the capability of cabling links to support Gigabit Ethernet operation compliant with the IEEE 802.3ab standard. Irrespective of the category of cables and connectors installed, a "Pass/Fail" result indicates whether the existing cabling can support data rates up to 1Gbit/s.

GIGABIT LAN QUALIFIER WITH NETWORK DIAGNOSTIC TOOL

NetXpert 1400

psiber

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Specification	
Measurement Technology	Time Domain Reflectometry (TDR)
Cable Measurements	Cable Testing and ID: up to 1,000 ft (305 m) Split Pair Detection: 3 ft (1 m) to 1,000 ft (305 m) Length Measurement: 0 to 1,500 ft (457 m), ± (5%+1ft) Distance to fault: 0 to 200 m ± (5% + 1m) Supports 8 continuity and ID numbers remotes (RJ 45) Supports 20 RJ 45 and 20 F connector ID only remotes
Power over Ethernet	Tests for IEEE 802.3af and IEEE 802.3at (PoE +) compliant PoE Tests for classes and loads cable up to 25.5 watts (at class 4 Identifies Mode A or B (pairs with PoE)
Active Ethernet	Indicates advertised speeds of 10/100/1000 base-T half or full duplex Can Link to network at 10/100 base-T
Maximum Voltage	Parameters refer to the maximum voltage that can be applied to any 2 connector pins without causing damage to the tester. - RJ Jack: 66 Vdc or 55 Vac - F-connector: 50 Vdc or Vac
Save Test Results	Stores up to 250 Cable or network tests with user defined names
Tone Generation	Tone Frequencies: 730 Hz and 1440 Hz
Languages	English, French, German
Battery	Li-Ion Akku, 7,2 VDC, 5,500 mA-hr (typical) Battery Life - ca. 32 hrs, 16 hrs with gigabit link, 55 hrs stand-by
Temperature	Operating: 32 to 122°F (0 to 50°C) Storage: -22 to 140°F (-30 to 60°)
Humidity	10 to 90% non-condensing
Enclosure	High-strength PC/ABS plastic with VO rating with boot Withstands 4 foot (1,20m) drop on to concrete
Display	3,5" Color Touch Screen Display
Size	6 x 10 x 23 cm
Weight	With batteries: 1 lb 12 oz 508 g)

For more information please contact:

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GIGABIT LAN QUALIFIER WITH NETWORK DIAGNOSTIC TOOL

Cable Testing and Ethernet Speed Certification

The NetXpert 1400 is a cost-effective alternative for installers and operators of network cabling systems where qualifying cabling bandwidth up to Gigabit Ethernet is sufficient. The NetXpert allows users to verify whether cabling links will support a maximum data rate of up to 1Gbit/s irrespective of the category of the cables, patch panels, or outlets installed.

Performing standards-based tests with real data as per IEEE 802.3ab and bit error rate tests (BERT) the NetXpert 1400 tests the error-free data transmission at 100Mbit/s or 1Gbit/s. Adding to this, parameters affecting signal quality can be displayed including signal-to-noise ratio (SNR) and delay skew. Delay skew in a 4-pair cable indicates the signal time delay between pairs and can impact Gigabit Ethernet performance.

Continuity test results of all 8 wires and the shielding are displayed in wire map format in full colour while showing cable faults such as opens, shorts, miswires, and split pairs in a clear and easy to understand way. Cable length and distance to the cable fault are determined using advanced TDR (Time Domain Reflectometer) technology.

The results can be saved in the NetXpert 1400 and full colour reports can be generated for documentation purposes.

Features

- Testing network cabling and coaxial cabling
- Tests data cabling for IEEE 802.3 compliance at transmission rates of up to 1Gbit/s (BERT)
- Determines signal-to-noise ratio (SNR)
- Determines delay skew
- Determines pair lengths and distance to fault performing full TDR measurement
- Full-colour wire map shows opens, shorts, miswires, and split pairs
- Results can be saved in the tester, and standards-based measurement reports providing "Pass/Fail" results can be generated

Cable Qualifier

Network Testing and Diagnosis

Featuring a bundle of network testing capabilities, the NetXpert 1400 assists you with verifying network configuration and troubleshooting networks as any moves, adds & changes (MACs) performed will require a renewed verification.

The NetXpert 1400 verifies, when connected to a communications outlet, if a link can be established to the switch and which connection speeds are supported (up to 1Gbit/s). The Ping test detects the availability of individual and lists of IPv4 and IPv6 addresses and any user-selectable URLs.

On top of this, the user can choose from a range of other network tests, such as LLDP/CDP/NDP and VLAN discovery and comprehensive PoE (Power over Ethernet) tests, including a load test.

- Link test up to 1 Gbit/s to identify link capability and link status
- Ping to a single or lists of IPv4 and IPv6 addresses (IPv6 available late 2014) as well as any URL on the internet
- CDP/LLDP/NDP and VLAN discovery
- PoE / PoE+ detection and load test for voltage drop
- DHCP test
- Traceroute
- Switch Port identification by blinking the port LED

Full-colour, Easy-to-Use Touch Screen

The full-colour touch screen and another 4 buttons make the NetXpert 1400 easy to use while the high-resolution colour screen guarantees excellent readability in any environment. Its ruggedized design is ideally suited for rough handling environments. The PC-based reporting software allows the generation of detailed test reports and documentation.

Kit includes	Quantity
NetXpert Main Unit	1
Active remote	1
Power supply	2
4 GB SD card	1
Micro USB cable	1
Network and coax remote set (each #1-5), F-conn coupler	1 set
Network patch cable	2
Sacrificial cable	2
Hanging strap and clip	1
Carrying Case	1

WireXpert 4500

softing

CABLE CERTIFIER

1st CAT 8 Cable Certifier

The WireXpert is the first cable certifier with capability to certify the highest performance cabling systems in enterprise networks and data centers. Cable installers make significant gain in productivity with WireXpert's industry leading test speed and ease of use. With certification testing up to Class FA and CAT8 copper cabling, as well as MPO, SM and MM fiber optic cabling, WireXpert is ready for 40G and beyond. In fact, major cable vendors are using WireXpert in their labs for qualifying CAT8 cabling systems under development.

CABLE CERTIFIER

WireXpert 4500

Feature List

- First cable certification up to **2500 MHz** to support new TIA CAT 8 und ISO Class I and II draft standard
- Most advanced cable certification for all standards: Class D/E/E_A/F_A, Category 5e/6/6_A, and the new draft CAT 8 as well as ISO draft standards Class I and Class II
- Fastest Autotest in less than 9 Seconds
- Accuracy independently verified by ETL
- Exceeds ISO Level V*, IV and TIA Level IIIe Accuracy requirements
- Endorsed by over 20 cable companies worldwide
- Field upgradable with many options e.g. patchcord testing, Industrial Ethernet, Class F_A
- Perform extended Fiber certification for 850/1300 MM and 1310/1550 SM Fiber
- First to support MPO Fiber testing for data centers
- Advanced reporting and documentation
- The only certifier supporting all data center, premise cabling and industrial ethernet requirements

* draft IEC61935-1 ed4

Easy to Use and ruggedized design

WireXpert comes with an intuitive touch sensitive user interface, featuring bright color LCD screens designed for industrial, heavy duty usage. The Dual Control System (DCS ™) – featuring identical devices for remote and main units – makes it really easy to operate the test cycles. Whether coordinated by two technicians or only one, walking time between outlets is minimized.

Fast and simple for highest productivity

WireXpert completes CAT 6_A certification test in less than 9 seconds and Class F_A testing in 15 seconds. It offers intuitive navigation through the screens on the device, and generates professional reports through its PC software ReportXpert.

Protects your Investment: Beyond 10G

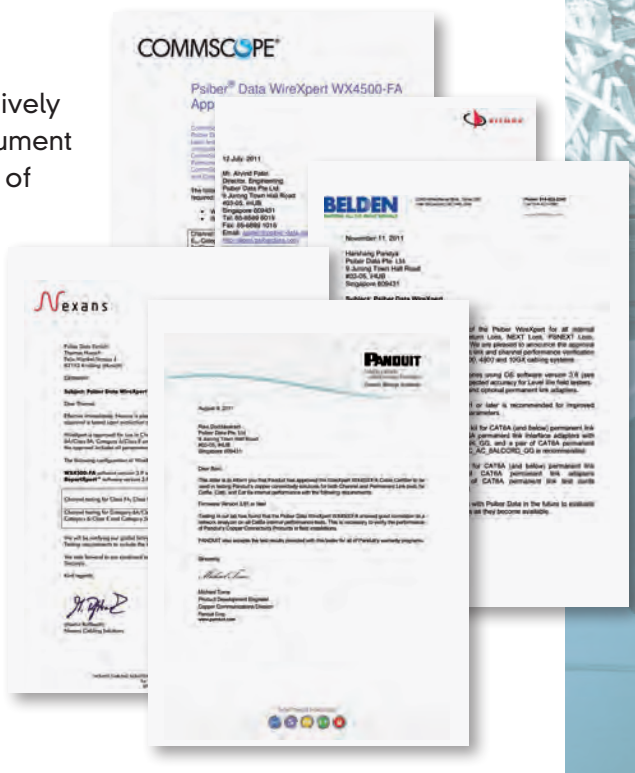
If you are testing 10 Gb/s cabling, WireXpert is the clear choice. If you are thinking beyond 10G, WireXpert is the only choice. Built on a future proof, scalable measurement engine, WireXpert protects your investment in test equipment as the data rates supported by the cabling systems increase. WireXpert employs a novel measurement architecture that achieves extremely wide bandwidth with superior measurement accuracy. Its unique RF measurement engine exceeds level IV and level V requirements throughout the easurement frequency range.

Proven Accuracy

WireXpert has been independently verified by highly respected test laboratories such as ETL.

Vendor Approvals

Most leading cable manufacturers have extensively tested WireXpert and have approved the instrument for field certification and associated warranties of their structured cabling solutions. Laboratory testing and comparisons against vector analyzers have proven that WireXpert has excellent accuracy and measurements correlate with laboratory equipment. In fact, major cable vendors are using WireXpert in their labs for qualifying CAT8 cabling systems under development.



WireXpert 4500

Testing Cabling Systems CAT6$_A$ and Beyond

WireXpert, with its industry leading measurement performance, provides adapters for testing cabling systems with higher performance than CAT6$_A$ (500MHz). For Class F$_A$ cabling, testing is performed over full standards defined frequency range from 1MHz through 1000MHz. Both TERA and GG45/ARJ45 interfaces are available through WireXpert test adapters. Both channel and permanent link testing are supported. Adapters are also available for testing CAT7$_A$ patch-cords.
With measurement bandwidth exceeding 2000MHz, WireXpert is capable of testing CAT8 cabling once the standard is approved.

Kit Includes	Quantity
WireXpert Handheld units	2
Li-Ion Batteries	2
Stylus with Cords	2
Display Protection Covers	2
CAT 6$_A$ Permanent Link Interface Adapters	2
CAT 6$_A$ Permanent Link Test Cords	2
CAT 6$_A$ Channel Adapters	2
USB Thumb Drive incl. Manual and Software	1
Talk Head Sets	2
AC Power Adapters	2
Country Specific Power Cord	2
Calibration Certificate	1
Carrying Case	1
Quick Reference Guide	1

Copper patch-cord testing with WireXpert

WireXpert offers an efficient way for quickly identifying and recording the performance of patch-cords. With its fast and accurate dual-ended testing, WireXpert's patch-cord test kits are suitable for both manufacturing testing, as well as for incoming inspection at end user premises.
WireXpert patch-cord test kits are available for testing CAT5e, CAT6, $CAT6_A$, and $CAT7/7_A$ patch-cords.

Industrial Ethernet cabling test

WireXpert's industrial Ethernet cabling test solution comprise of M12 adapter kits. Both channel and permanent link configurations with M12 industrial Ethernet connector are supported.

Industrial Ethernet kit with X-Coded M12 interface is also available, making it possible to effectively test 10-Gig ready industrial Ethernet cables.

Coax cable test

With coax test adapters, WireXpert supports testing of coaxial cables for attenuation and return loss over a wide frequency band.

Alien Cross-talk

Alien crosstalk testing with WireXpert is performed using two WireXpert sets. This means, there are no special adapters and no need for carrying a laptop to the field for data analysis.

Laboratory Testing of Cables and components

WireXpert features extremely versatile adapters that enable the lab technicians to replace expensive Vector Network Analyser with WireXpert for performing differential S-parameter measurements over 1MHz to 2,500MHz.

Adapters & Accessories for Copper Cable Certification

Adapters & Accessories
Class E_A / $CAT6_A$ channel adapter kit
Pair of Permanent link cerification test cord for Class E_A / $CAT6_A$ and below (wearable part)
Kit for Class F and Class F_A TERA permanent link testing
Kit for Class F_A channel adapters with GG45/ARJ45 interface
Pair of coax adapters
Pair of $CAT6_A$ patch cord adapters
Hard carrying case
Pair of nylon covers

WireXpert 4500

WireXpert Optical Loss Test Kit

Modern network infrastructure involves installing both copper and fiber cabling within the same premises. With the increasing demand for bandwidth, certification plays a crucial role for guaranteed data rates. Certification requires characterizing each fiber link to the desired standards in measuring the insertion loss (attenuation) and length of the fiber link. WireXpert provides you with a fast, easy and accurate way of determining the pass/fail criteria of the installation across ISO/IEC or TIA standards.

- Performs autotest in less than 6 seconds
- Perform Tier 1 Certification for ISO/IEC and TIA 568 C.3 Standards
- Measures and certifies length and loss for singlemode at 1310nm and 1550 nm and multimode cabling at 850nm and 1300nm
- Seamlessly integrates copper and fiber reports. Generate professional warranty and certification test reports
- Double your productivity with DCS™ technology by using your remote unit as an independent optical certifier

Test Limits and Link validations

WireXpert optical loss test kit supports all the latest standards from TIA 568 C.3 to ISO 14763-3 standard. By automatically calculating the loss budgets the WireXpert saves you the trouble of having to perform cumbersome calculations and plugging in data for individual connectors and splices for different standards. In certain scenarios where end-to-end loss is required to be measured and documented, WireXpert provides with a customized link validation workflow that lets you define end-to-end loss and perform the certification.

Multimode and Singlemode kits

WireXpert optical loss kits are available for both multimode and singlemode fiber networks. The modular solution allows testing both types of networks on the same WireXpert unit with interchangeable adapters. Each module lets you perform very accurate loss and length measurements at two wavelengths meeting all the various standard requirements. Both kits support certification of horizontal as well as back-bone cabling by supporting dual wavelength measurement on each adapter.

MPO Testing Kit

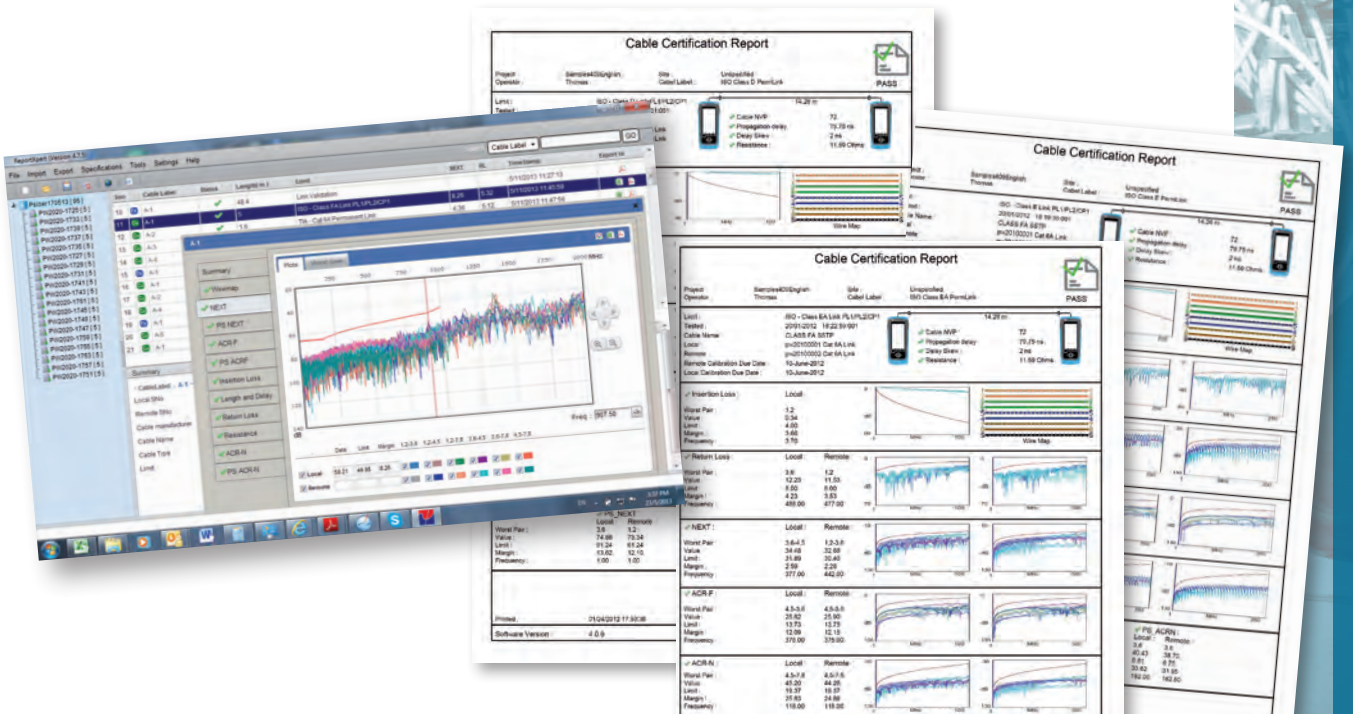
WireXpert's versatile MPO testing solution enables data center IT managers to get quick and accurate assessment of the quality of MPO links. Additionally, it helps in performing incoming inspection of MPO components like cassettes. The key feature of this solution is a 5-second Autotest that includes a detection of fiber connection map and measurement of loss on each channel.
WireXpert cable certification tester enables testing of MPO/MTP links when used with MPO adapters. A typical test setup consists of WireXpert local unit with MPO power meter adapter, and the remote unit with MPO light source adapter attached.
Alternatively, a multimode fiber adapter can be attached to WireXpert local unit for testing individual fibers in MPO link.
This solution provides a fast and accurate measurement of MPO link loss and testing against user configured limit.

Adapters & Accessories for Fiber Cable Certification

Adapters & Accessories
Multimode Fiber adapter kit
Singlemode Fiber adapter kit
MPO test kit

Professional eXport

Manage your results and generate professional reports and warranty documents. The WireXpert certification solution includes eXport, a PC based reporting software that produces full color graphical reports in summary or detail.



WireXpert 4500

CABLE CERTIFIER

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Parameter	Specification
Copper testing	
Certification Testing	TIA 568-C.2 CAT 5e, 6, 6_A, draft CAT 8 ISO/IEC 11801, EN 50173 Class D,E,E_A,F,F_A draft Class I and Class II Permanent link and channel
	CAT 5e, 6, 6_A, 7, 7_A and patch-cord
Autotest time - CAT6A	9 sec
Autotest time - Class F_A	15 sec
Max cable length for dual ended Autotest	500m
Insertion Cycles	Channel: 10,000 typical Permanent link: 5,000 typical
TEST PARAMETERS	As specified in TIA 1152, IEC 61935-1
Wiremap	
Loop Resistance	0 to 40 Ω, ±0.1 Ω
Length	0 to 500m, ±0.5m (dual ended testing)
Propagation Delay and Delay Skew	0 to 5000 ns, ±1 ns
Attenuation	0 to 70 dB, ±0.1dB
Pair-to-Pair and Power-Sum NEXT	0 to 85 dB, ±0.2 dB
Pair-to-Pair and Power-Sum ACRF	0 to 85 dB, ±0.2 dB
Return Loss	0 to 40 dB, ±0.2 dB
ACRN, PSACRN	-25 to 85 dB, ±0.5 dB
Advanced Diagnostics	Time-domain fault Locator for RL and NEXT
Measurement Accuracy	Exceeds TIA 1152 Level IIIe, IEC 61935 level IV
Measurement Frequency Range	1- 2,500 MHz
Fiber Testing - SM	
Wavelengths	1310nm, 1550nm
Autotest Time	6 seconds for dual ended test
Connector Type	SC, LC (optional adapter needed)
Test Standard	TIA 568 C.3, IEC 14763-3
TEST PARAMETERS	
Loss	0 to 31 dB, ±0.2 dB
Length	0 to 20,000m, ±1.5m
Output Power	-5 dBm to -9dBm
Receiver Sensitivy	-40dBm
Fiber Testing - MM	
Wavelengths	850nm, 1300nm
Autotest Time	6 seconds for dual ended test
Connector Type	SC
Test Standard	TIA 568 C.3, IEC 14763-3
TEST PARAMETERS	Loss
Loss	0 to 24 dB, ±0.2 dB
Length	0 to 2,000m, ±1.5m
Encircled Flux Compliance	through external mode conditioner
Dynamic Range	24 dB
Output Power	-4dBm to -10dBm
Receiver Sensitivy	-34 dBm
General Specifications	
Interfaces	Probe Interface, RJ-45 Ethernet, USB host and device, talkset, power jack
Display	6" industrial LCD, touch sensitive area on both units
Enclosure	Ruggedized plastic with rubber over-mold, withstands 1.5m drop test on hard surface
Remote unit abilities	View test results, save tests, start autotest
Power supply	AC 100-240V to 12V, 3A power adapter
Input over-voltage protection	Protected against Telco voltages
Battery	Removable and rechargeable Li-Ion
Battery Capacity	>8 hours continuous operation
Internal Storage Capacity	2000 copper test results with full plot information
External Storage	USB Flash Drive
Dimensions	232 X 126 X 87 mm^3 (9.1 X 5.0 X 3.4 $inch^3$)
Weight	Approx. 1.4 kg (3.0 lb) / unit
Supported Languages	Chinese, Czech, English, Finnish, French, German, Italian, Japanese, Korean, Polish, Portuguese, Russian, Spanish, Swedish, Turkish
Calibration period	1 year
Environmental	
Operating Temperature	0 to 40 °C
Storage Temperature	-20 to 60 °C
Relative humidity	10% to 80%

For more information please contact:

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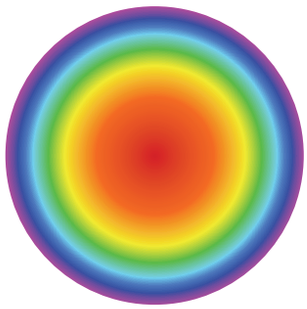
WireXpert Adapter

Encircled Flux Compliant Multimode Adapters

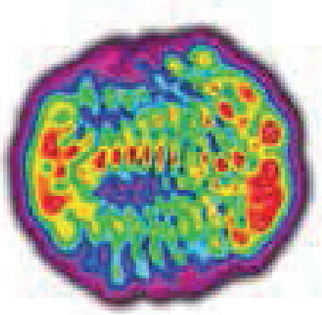
Latest Standard Compliant Fiber Certification

The new generation of Multimode Fiber Adapters add full standards compliant fiber certification capability to the WireXpert series of testers. A light source and power meter are used to measure the power loss and length of optical cables at 850 and 1300 nm. Certification of multimode fibers has often been a contentious issue due to the inherent uncertainties in the measurement process. ISO/IEC and TIA have recently adopted an Encircled Flux (EF) standard that defines the launch condition for the light sources used in multimode test equipment. The WireXpert's new EF compliant adapters give you guaranteed compliance to the EF standard IEC 61280-4-1

- **Compliant to IEC- 61280-4-1 EF standards and IEC-14763-3**
- **Provides validation to different modal behaviors of various fiber optic manufacturers**
- **Interchangeable robust SC, LC and ST adapters**
- **Provides troubleshooting with built-in Visual Fault Locator (VFL)**
- **Improves repeatability of measurements**
- **Reduces insertion loss variation between laboratory and field instruments**



EF compliant light source with WireXpert



non compliant light source with other certifier

WireXpert Adapter

EF Compliance with Modally Transparent Cord

The standards require the EF compliance to be guaranteed at the end of the launch cord. To meet this requirement, WireXpert's innovative method of using modally transparent launch cords enables the retention of the EF compliance to the end of the launch cord. These modal transparent launch cords are readily available by most manufacturers and is a more cost effective solution compared to alternatives which would require special components attached to the launch cords.

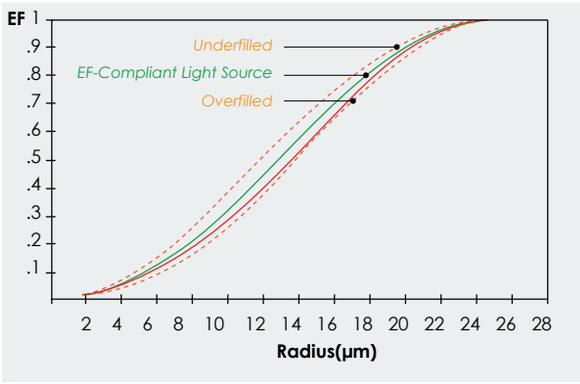
EF Compliant

WireXpert is EF compliant all the way from the source

What is Encircled Flux?

Optical signals that carry information in multimode cabling do so in a variety of modes. Modal behavior is dependent on factors such as the diameter of the core (which determines the numerical aperture), the wavelength of the light source, and launch condition of the light source (over-filled or under-filled). Multimode fiber used for communication typically has a core diameter of 50 or 62.5µm as compared to singlemode with a diameter of 9µm. Due to the wide diameter of the core in multimode fiber cables, the amount of light that gets coupled from the light source is large, resulting in poor repeatability and high insertion loss variability between fibers.

Encircled Flux is a metric defined as the integration of intensity of light coupled into the fiber as a function of distance from the core. It is important to define the upper and lower bounds for the Encircled Flux to produce reproducible launch conditions.
The IEC 61280-4-1 standard defines these two parameters and when a curve-fitting is done with these numbers, it will result in the familiar EF template graph as shown in the figureThe upper boundary is due to more light getting coupled closer to the center of the core. The lower boundary is due to more light getting coupled further away from the center of the core. Therefore, the launch condition should stay between the upper and the lower boundaries of the graph in order to be considered as EF-compliant.



Encircled Flux (EF) template

Ordering Information

WX_AD_EF_MM2 Encircled flux compliant multimode fiber adapter set (850nm and 1300nm). Includes a pair of FC-SC modally transparent test cords, a pair of SC-SC tail cords and cleaning kit

WX_AC_LC_EF_MM_CORDKIT LC test cord kit for EF-compliant multimode adapter. Includes a pair of modally transparent FC-LC test cords, a pair of LC-LC simplex tail cords, a pair of interchangeable LC adapters and a pair of LC-LC duplex adapters

WX_AC_EF_MM_REFCORD_SC2 A pair of modally transparent FC-SC test reference cords and a pair of SC-SC tail cords

Technical Specifications (Light Source 850 & 1300nm)

Power	-16 ~ -20 dBm
Spectral Width	±15 nm
EF Compliance	IEC 61280-4-1
Source Type	LED
RECEIVER	
Dynamic Range	12 dB
Power Meter Sensitivity	-40 dB
Power Meter Resolution	0.1 dB
VISUAL FAULT LOCATOR	
Wavelength	650 µm
Power	0 dBm

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INDUSTRIAL ETHERNET

Industrial Ethernet Tester BC-200-ETH

Easy-to-use hand-held tester for universal Ethernet diagnostics

The Industrial Ethernet Tester BC-200-ETH is an industrial strength troubleshooting instrument for cable testing, network and data analysis, and bandwidth assessment of Ethernet networks. It is an ideal tool for commissioning staff, system integrators, and maintenance engineers.

FEW BUTTONS, EASY-TO-UNDERSTAND, AND EASY-TO-USE MENU

After power-up this compact and extremely robust unit is controlled using a color touch screen. The intuitive and easy-to-use menu facilitates quick tests. On the display, the test results are clear and easy to read. The integrated help system provides assistance whenever you need it. In "Expert Mode" you will find additional details and useful troubleshooting tips in plain text.

ALL-IN-ONE - THE FUNCTIONALITY OF THREE TOOLS COMBINED INTO ONE

As "cable tester", the unit checks the network for short circuits, continuity, and incorrect wiring. It locates any existing cabling problems, even in power-over-Ethernet installations. The "protocol analyzer" functionality monitors the data communication on the network. Configurable data filters help a user to quickly identify and correct complex problems. The unit stores up-to 10,000 data packets that can be downloaded to the PC for further analysis using the PROFINET Diagnostics Suite. The "traffic generator" feature tests the robustness of an installation by injecting different levels of traffic load.

BANDWIDTH CHECK FOR ROBUST OPERATION

Industrial Ethernet networks must offer a minimum bandwidth to permit real-time data traffic. The Industrial Ethernet Tester BC-200-ETH determines the performance of a network and displays the result sorted by protocols and network nodes. This allows identifying and correcting potential problems well in advance. The Industrial Ethernet Tester BC-200-ETH is able to execute a standardized stress test according to RFC2455. The results can be used as part of a certificate.

CUSTOMER BENEFITS

- Easy-to-use
- Economical multifunctional tool
- Verifies robustness of Industrial Ethernet installations

TECHNICAL DATA

Dimensions (LxWxH)	16.5cm x 10.0cm x 6.8cm
Weight	610g
Power Supply	Lithium Ion Battery and AC Adapter
Ambient Conditions	> Operating Temperature: 0°C...45 °C > Storage Temperature: -10°C ...60°C
Display	LCD Color Display with Touch Screen (320 x 240 x RGB)
Network types	10/100/1000 Base-T
Connector Types	> RJ45 (2) Ethernet/Cable Test > USB A & USB B Ports > AC Adapter for Main Power Supply/Battery Charging
Functions	> Network Analysis With Statistical Evaluation > Expert Mode for Fault Description and Correction > Network Test Using Ping, Link Activation and Discovery Functions > Packet Capture and Recording > Cable Test > Traffic Generator for Assessing Network Performance > Stress Test According to RFC 2544

ORDER NUMBER

FDI-AY-1000	Industrial Ethernet Tester BC-200-ETH

ADDITIONAL PRODUCTS AND SERVICES

TRA-PN-TECH	Training “PROFINET - Technology“
TRA-PN-TS	Training “PROFINET - Troubleshooting“
TRA-PN-CERTENG	Training “PROFINET - Certified Engineer“
100-2290-02	Training “Industrial Ethernet - Troubleshooting“

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Softing Industrial Automation is a world leading provider of industrial communication products and technologies for manufacturing and process automation. Our products are tailored to the requirements of system integrators, device vendors, machine and equipment manufacturers or end users and are known for their ease-of-use and functional advantages.

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PROFINET

PROFINET Monitor

Stationary Monitoring Tool for Early Detection of PROFINET Network Problems

The PROFINET Monitor is a powerful tool for continuously monitoring the status of PROFINET networks based on configurable trigger definitions. Notifications about changes in the network behavior can be used for identifying possible future network failures. Logged telegrams provide access to additional information.

PREVENTING PRODUCTION LOSS BY EARLY DETECTION OF NETWORK PROBLEMS

The PROFINET Monitor allows the continuous monitoring of PROFINET networks for configured events. For instance, it detects events like faulty telegrams, deviations of cycle times, loss of available nodes, or changes in the network load. When a user-defined number of events per time unit is exceeded, the PROFINET Monitor sends an alarm to the PLC via a signaling contact or to an SNMP agent. Up to 100 alarms are shown in an alarm list. For each alarm, the associated telegram traffic can be logged. Based on this information the reason of the alarm can later be found using the Softing NetSpector product. In the case of an alarm, the PROFINET Monitor allows the analysis of the event cause while the communication is still running. This way the escalation of the observed events to more serious communication problems, which may end up in production losses, can be prevented.

PLANNING OF PREVENTIVE MAINTENANCE ACTIVITIES

The experience gained in analyzing the causes of the individual events that occurred can be used to implement a condition-based maintenance strategy. This reduces operator intervention to when it is needed. As a result, appropriate preventive maintenance actions can be performed during routine system downtimes, making best use of maintenance resources.

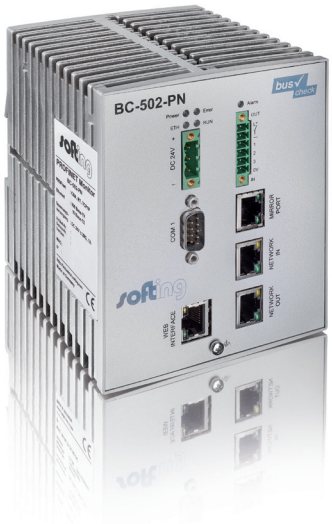
EASY-TO-USE DEPLOYMENT AND WEB SERVER INTERFACE

The use of the PROFINET Monitor causes no communication interferences and does not affect data traffic. On connection to the PROFINET network, the PROFINET Monitor immediately starts monitoring. All the telegrams are transmitted even in case of a power failure at the device. For installation and commissioning only basic PROFINET communication know-how is required.

The complete PROFINET Monitor configuration can be performed via Ethernet using an integrated web server. This web server interface also provides the graphical representation of the individual settings as well as all the recorded information.

CUSTOMER BENEFITS

- Prevention of Production Losses
- Planning of Preventive Maintenance Activities
- Easy-to-Use Deployment and Web Server Interface



TECHNICAL DATA

PROFINET	Conformance Classes	Conformance Class A, Conformance Class B
Connectors	PROFINET	2 x RJ45, 10/100Mbit/s, Integration into Network Without Any Interference
	Ethernet	1 x RJ45, 10/100Mbit/s, for Network Integration and Access to Web Server and SNMP Agent
	Mirror Port	1 x RJ45, 1000Mbit/s
	RS232	Reserved
	Control Signals	Potential-free Contact, 3 Inputs 24VDC, Active High
	Parameterization	Via Integrated Web Server
	Access to Information	Via Integrated Web Server or via SNMP access to MIB
	Snapshot Analysis	Via PC Protocol Analysis Software NetSpector, see Separate Datasheet
Environment / Dimensions	Operation / Storage Temperature	5°C...+55°C / -20°C...+70°C
	Dimensions	131mm x 110mm x 111mm
	Weight	Approximately 600g
	Mounting	35mm DIN Rail
	Protection Class	IP20
Power Supply	Supply Voltage	24VDC (±20%)
	Current Consumption	Typically <1A
Conformity		CE

SCOPE OF DELIVERY

PROFINET Monitor	Hardware	PROFINET Monitor, Connectors for Power Supply and Signal Output, Ethernet Cable
	Documentation	Manual

ORDER NUMBERS

DDA-AA-005000	BC-502-PN Basic Line - PROFINET Analysis, Web User Interface, Notification Via Potential-free Contacts, Snapshot
DDL-AA-005001	BC-502-PN Comfort Line - BC-502-PN Basic Line Functionality Plus Mirror Port
DDL-AA-005002	BC-502-PN Premium Line - BC-502-PN Basic Line Functionality Plus SNMP Query
DDL-AA-005003	BC-502-PN Comfort Line Plus - BC-502-PN Basic Line Functionality Plus SNMP Query, Mirror Port
LRA-AA-005011	License Upgrade BC-502-PN Basic Line to BC-502-PN Comfort Line
LRA-AA-005012	License Upgrade BC-502-PN Basic Line to BC-502-PN Premium Line
LRA-AA-005013	License Upgrade BC-502-PN Basic Line to BC-502-PN Comfort Line Plus

ADDITIONAL PRODUCTS AND SERVICES

100-2265-03	Ethernet Protocol Analyzer NetSpector
FDI-AY-1000	Industrial Ethernet Tester BC-200-ETH
TRA-PN-TECH	Training "PROFINET – Technology"
TRA-PN-CERTENG	Training "PROFINET Certified Engineer"

Softing Industrial Automation is a world leading provider of industrial communication products and technologies for manufacturing and process automation. Our products are tailored to the requirements of system integrators, device vendors, machine and equipment manufacturers or end users and are known for their ease-of-use and functional advantages.

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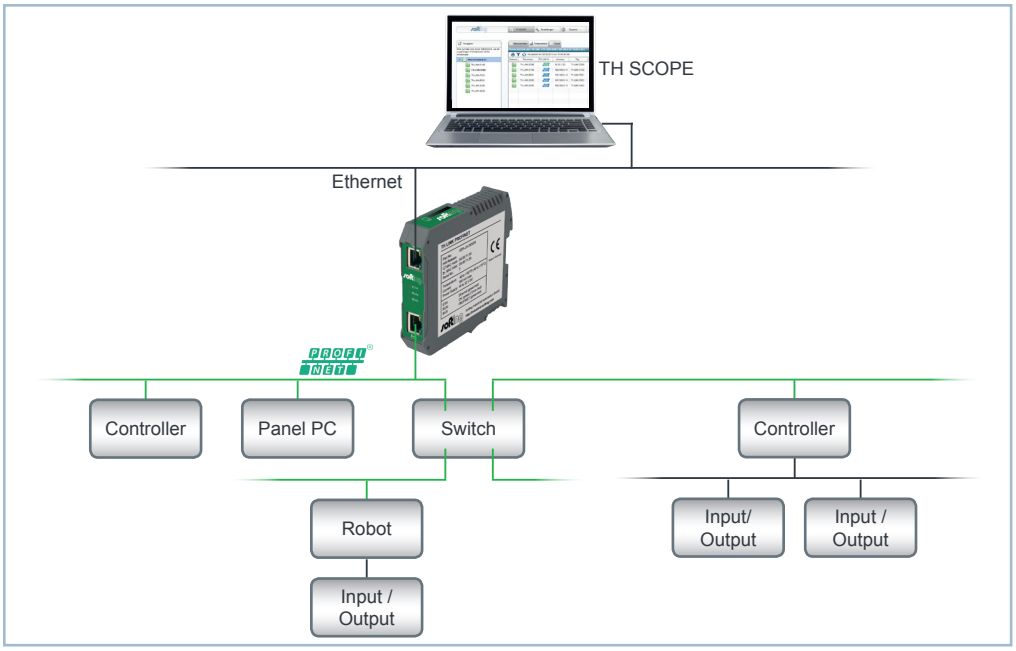
TH LINK PROFINET

PROFINET Network Diagnostics Independent from Controller and Control Room

The TH LINK PROFINET diagnostics tool makes use of a controller-independent access to monitor PROFINET networks. The diagnostic data is collected in networks comprising up to 254 nodes, and made available to users through the TH SCOPE software application. TH LINK PROFINET is easy to use and can be integrated without interfering with the operation of existing installations.



Independent Access to PROFINET Network

> Controller-independent

> Independent of configuration tools

> Only one tool needed to monitor multiple IP subnetworks (up to 254 nodes, one or more controllers)

Designed for Installation without Interference with Plant Operation

> Connection to free port in PROFINET network, also possible during operation of the plant

> No need to install TAPs or use mirror ports

> Highest security (separate accesses for control room level and plant level, no routing)

> Easy integration into existing plants thanks to compact design

Powerful Data Collection Capabilities Optimized for PROFINET

> Collection from PROFINET devices and other nodes (e.g. PCs or camera systems)

> PROFINET supervisor in PROFINET networks

> Network load limit according to PROFINET guidelines

Optimized for Use by Maintenance Engineers

> Suitable for network acceptance testing, continuous monitoring and troubleshooting

> Easy and intuitive handling and operation

> Fault identification with intelligent troubleshooting assistance

> Seamless integration with TH SCOPE diagnostics software

Technical Data

Functionality	• Network detection and data collection (active/passive for PROFINET networks) • Alarm notification in case of fault • Basic monitoring, configuration • Integrated web server
Input Voltage	24 VDC (18 VDC … 32 VDC)
Current Consumption	max. 180 mA
Current Consumption Relay Contact	max. 100 mA
Operating Temperature	-40 °C … +75 °C
Relative Air Humidity	5 % … 95 % (non-condensing)
Ethernet Ports	RJ45 (10Base-T / 100Base-TX)
Mounting	35 mm DIN rail
Dimensions (HxWxD)	22,5 mm x 99 mm x 114,5 mm
Weight	120 g
Certifications	CE

Scope of Delivery

Hardware	TH LINK PROFINET
Documentation	Installation Manual, Release Note (by download)

Order Numbers

GDA-JA-003034	TH LINK PROFINET

Additional Products and Services

LRA-JY-003024	TH SCOPE (software key)
LRL-JY-003025	TH SCOPE (hardware key)
LRA-JY-003028	TH LINK PC Industrial Ethernet (software key)
LRL-JY-003029	TH LINK PC Industrial Ethernet (hardware key)
GDA-JY-003037	TH LINK Industrial Ethernet
TRA-PN-TECH	Training “PROFINET Technology”
TRA-PN-CERTENG	Training “PROFINET Commissioning and Troubleshooting”

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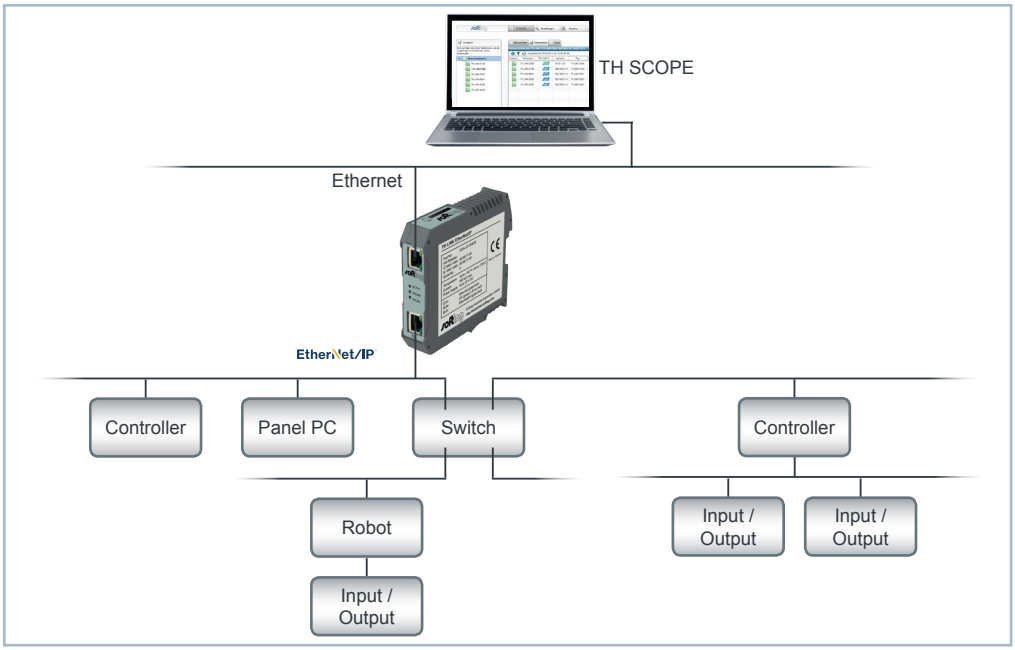
TH LINK EtherNet/IP

EtherNet/IP Network Diagnostics Independent from Controller and Control Room

The TH LINK EtherNet/IP diagnostics tool makes use of a controller-independent access to monitor EtherNet/IP networks. The diagnostic data is collected in networks comprising up to 254 nodes, and made available to users through the TH SCOPE software application. TH LINK EtherNet/IP is easy to use and can be integrated without interfering with the operation of existing installations.



Independent Access to EtherNet/IP Network

> Controller-independent

> Independent of configuration tools

> Only one tool needed to monitor multiple IP subnetworks (up to 254 nodes, one or more controllers)

Designed for Installation without Interference with Plant Operation

> Connection to free port in EtherNet/IP network, also possible during operation of the plant

> No need to install TAPs or use mirror ports

> Highest security (separate accesses for control room level and plant level, no routing)

> Easy integration into existing plants thanks to compact design

Powerful Data Collection Capabilities Optimized for EtherNet/IP

> Collection from EtherNet/IP devices and other nodes (e.g. PCs or camera systems)

> Common Industrial Protocol (CIP) enabled

> Combination of active and passive measurements

> Limitation of network load

Optimized for Use by Maintenance Engineers

> Suitable for network acceptance testing, continuous monitoring and troubleshooting

> Easy and intuitive handling and operation

> Fault identification with intelligent troubleshooting assistance

> Seamless integration with TH SCOPE diagnostics software

Technical Data

Functionality	• Network detection and data collection • Alarm notification in case of fault • Basic monitoring, configuration • Integrated web server
Input Voltage	24 VDC (18 VDC … 32 VDC)
Current Consumption	max. 180 mA
Current Consumption Relay Contact	max. 100 mA
Operating Temperature	-40 °C … +75 °C
Relative Air Humidity	5 % … 95 % (non-condensing)
Ethernet Ports	RJ45 (10 Base-T / 100 Base-TX)
Mounting	35 mm DIN rail
Dimensions (HxWxD)	22,5 mm x 99 mm x 114,5 mm
Weight	120 g
Certifications	CE

Scope of Delivery

Hardware	TH LINK EtherNet/IP
Documentation	Installation Manual, Release Note (by download)

Order Numbers

GDA-JC-003035	TH LINK EtherNet/IP

Additional Products and Services

LRA-JY-003024	TH SCOPE (software key)
LRL-JY-003025	TH SCOPE (hardware key)
LRA-JY-003028	TH LINK PC Industrial Ethernet (software key)
LRL-JY-003029	TH LINK PC Industrial Ethernet (hardware key)
GDA-JY-003037	TH LINK Industrial Ethernet

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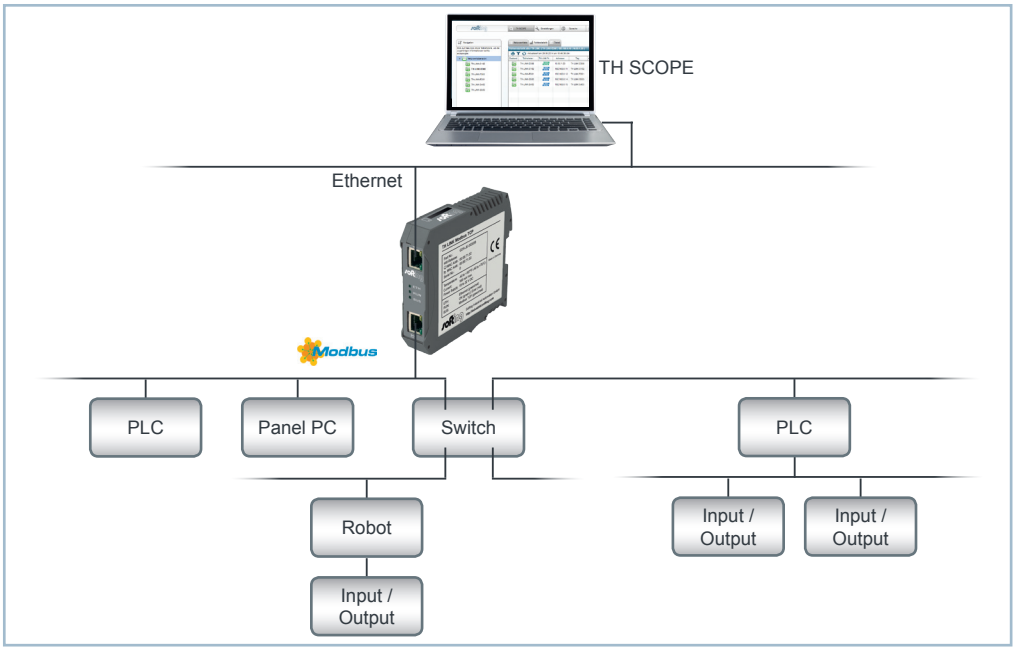
TH LINK Modbus TCP

Modbus TCP Network Diagnostics Independent from Controller and Control Room

The TH LINK for Modbus TCP diagnostics tool makes use of a controller-independent access to monitor Modbus TCP networks. The diagnostic data is collected in networks comprising up to 254 nodes, and made available to users through the TH SCOPE software application. TH LINK Modbus TCP is easy to use and can be integrated without interfering with the operation of existing installations.



Independent Access to Modbus TCP Network

> Controller-independent

> Independent of configuration tools

> Only one tool needed to monitor multiple IP subnetworks (up to 254 nodes, one or more controllers)

Designed for Installation without Interference with Plant Operation

> Connection to free port in Modbus TCP network, also possible during operation of the plant

> No need to install TAPs or use mirror ports

> Highest security (separate accesses for control room level and plant level, no routing)

> Easy integration into existing plants thanks to compact design

Powerful Data Collection Capabilities Optimized for Modbus TCP

> Collection from Modbus TCP devices and other nodes (e.g. PCs or camera systems)

> Combination of active and passive measurements

> Limitation of network load

Optimized for Use by Maintenance Engineers

> Suitable for network acceptance testing, continuous monitoring and troubleshooting

> Easy and intuitive handling and operation

> Fault identification with intelligent troubleshooting assistance

> Seamless integration with TH SCOPE diagnostics software

Technical Data

Functionality	• Network detection and data collection • Alarm notification in case of fault • Basic monitoring, configuration • Integrated web server
Input Voltage	24 VDC (18 VDC … 32 VDC)
Current Consumption	max. 180 mA
Current Consumption Relay Contact	max. 100 mA
Operating Temperature	-40 °C … +75 °C
Relative Air Humidity	5 % … 95 % (non-condensing)
Ethernet Ports	RJ45 (10 Base-T / 100 Base-TX)
Mounting	35 mm DIN rail
Dimensions (HxWxD)	22,5 mm x 99 mm x 114,5 mm
Weight	120 g
Certifications	CE

Scope of Delivery

Hardware	TH LINK Modbus TCP
Documentation	Installation Manual, Release Note (by download)

Order Numbers

GDA-JA-003036	TH LINK Modbus TCP

Additional Products and Services

LRA-JY-003024	TH SCOPE (software key)
LRL-JY-003025	TH SCOPE (hardware key)
LRA-JY-003028	TH LINK PC Industrial Ethernet (software key)
LRL-JY-003029	TH LINK PC Industrial Ethernet (hardware key)
GDA-JY-003037	TH LINK Industrial Ethernet

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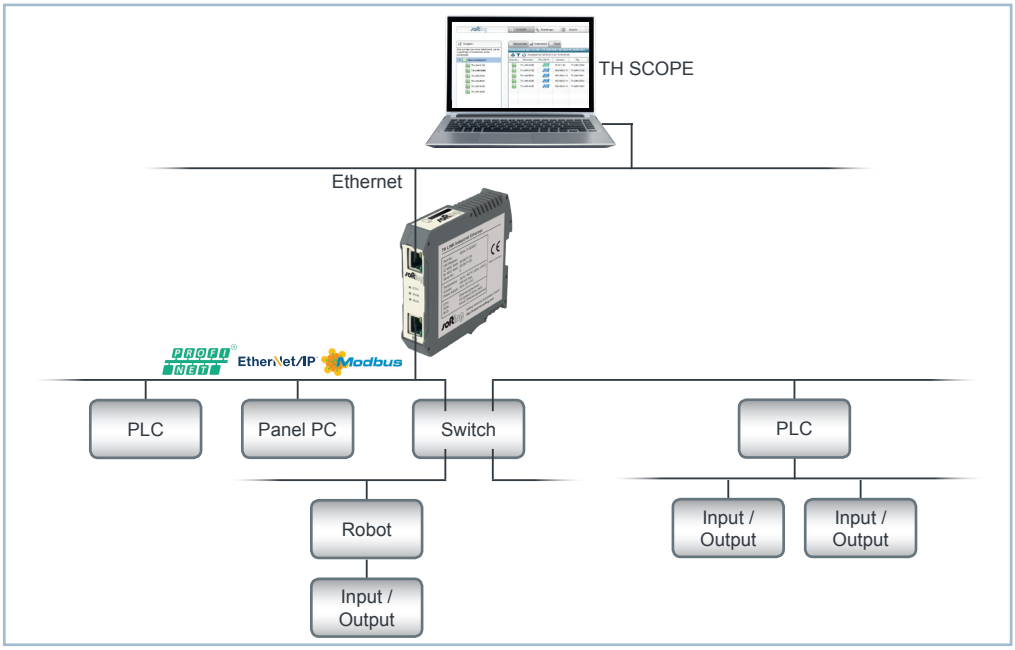
TH LINK Industrial Ethernet

PROFINET, EtherNet/IP and Modbus TCP Network Diagnostics Independent from Controller and Control Room

The TH LINK Industrial Ethernet diagnostics tool makes use of a controller-independent access to monitor PROFINET, EtherNet/IP and Modbus TCP networks. The diagnostic data is collected in networks comprising up to 254 nodes, and made available to users through the TH SCOPE software application. TH LINK Industrial Ethernet is easy to use and can be integrated without interfering with the operation of existing installations.



Independent Access to PROFINET, EtherNet/IP and Modbus TCP Networks

> Controller-independent

> Independent of configuration tools

> Only one tool needed to monitor multiple IP subnetworks (up to 254 nodes, one or more controllers)

Designed for Installation without Interference with Plant Operation

> Connection to free port in industrial network, also possible during operation of the plant

> No need to install TAPs or use mirror ports

> Highest security (separate accesses for control room level and plant level, no routing)

> Easy integration into existing plants thanks to compact design

Powerful Data Collection Capabilities Optimized for Ethernet-Based Industrial Communication

> Support of the PROFINET, Ethernet/IP and Modbus TCP protocols

> Collection also from standard Ethernet devices (e.g. PCs or camera systems)

> PROFINET supervisor in PROFINET networks

> Network load limit according to PROFINET guidelines

Optimized for Use by Maintenance Engineers

> Suitable for network acceptance testing, continuous monitoring and troubleshooting

> Easy and intuitive handling and operation

> Fault identification with intelligent troubleshooting assistance

> Seamless integration with TH SCOPE diagnostics software

Technical Data

Functionality	• Network detection and data collection (active/passive) • Alarm notification in case of fault • Basic monitoring, configuration • Integrated web server
Input Voltage	24 VDC (18 VDC … 32 VDC)
Current Consumption	max. 180 mA
Current Consumption Relay Contact	max. 100 mA
Operating Temperature	-40 °C … +75 °C
Relative Air Humidity	5 % … 95 % (non-condensing)
Ethernet Ports	RJ45 (10 Base-T / 100 Base-TX)
Mounting	35 mm DIN rail
Dimensions (HxWxD)	22,5 mm x 99 mm x 114,5 mm
Weight	120 g
Certifications	CE

Scope of Delivery

Hardware	TH LINK Industrial Ethernet
Documentation	Installation Manual, Release Note (by download)

Order Numbers

GDA-JA-003037	TH LINK Industrial Ethernet

Additional Products and Services

LRA-JY-003024	TH SCOPE (software key)
LRL-JY-003025	TH SCOPE (hardware key)
LRA-JY-003028	TH LINK PC Industrial Ethernet (software key)
LRL-JY-003029	TH LINK PC Industrial Ethernet (hardware key)
TRA-PN-TECH	Training “PROFINET Technology”
TRA-PN-CERTENG	Training “PROFINET Commissioning and Troubleshooting”

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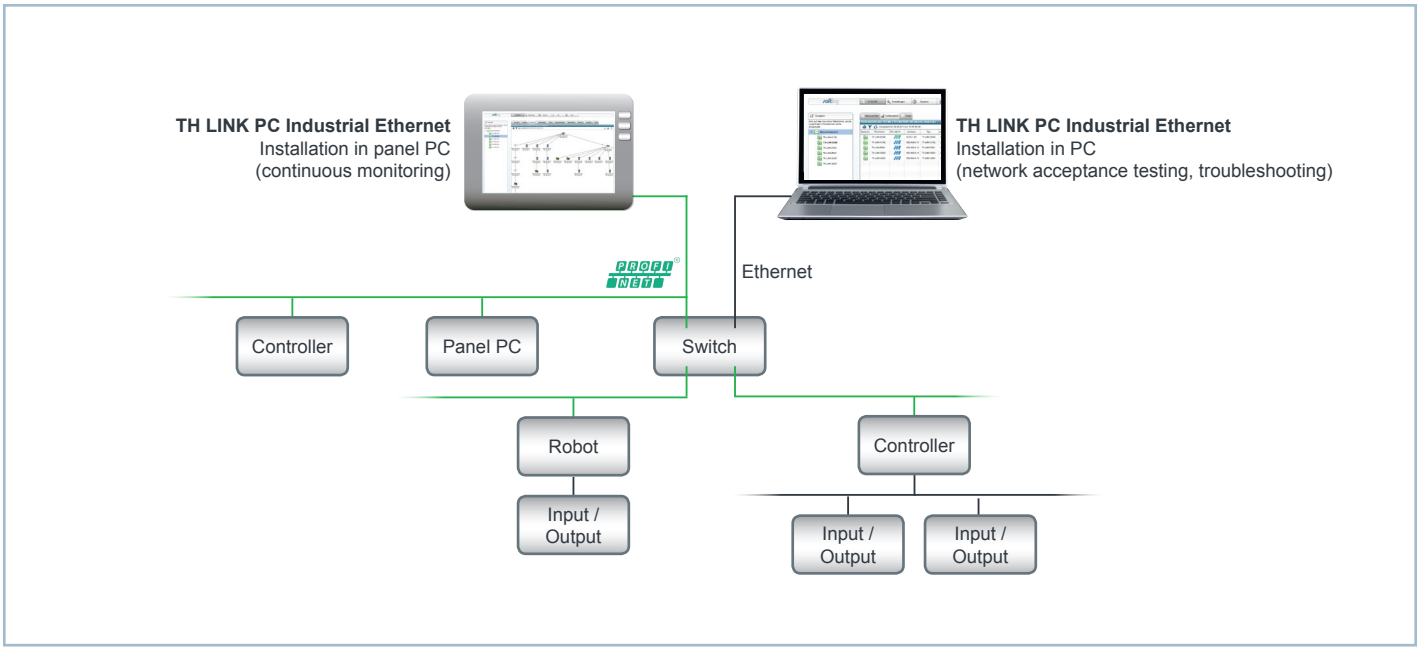
TH LINK PC Industrial Ethernet

Controller-Independent Diagnostics for Ethernet-Based Industrial Networks

The TH LINK PC Industrial Ethernet software product provides powerful industrial network diagnostics for plant operators and maintenance engineers. The diagnostic data is collected in networks comprising up to 254 nodes and made available to users through the TH SCOPE software application. TH LINK PC Industrial Ethernet is designed for temporary and continuous operation and supports the PROFINET, EtherNet/IP and Modbus TCP protocols.



Flexible Installation and Application

> Installation, e.g. in panels, for continuous monitoring (discovery of current topology, detection of firmware versions, diagnostic messages, etc.)
> Installation, e.g. in laptops, for temporary operation (network acceptance testing, troubleshooting)
> Connection to live industrial network possible without interfering with its operation
> No need to install TAPs or use mirror ports
> Designed to run on any PC with Windows operating system

Independent Access to Industrial Network

> Controller-independent
> Independent of configuration tools
> Monitoring of multiple IP subnetworks (up to 254 nodes, one or more controllers)

Powerful Data Collection Capabilities Optimized for Ethernet-Based Industrial Communication

> Support of the PROFINET, EtherNet/IP and Modbus TCP protocols
> Collection also from standard Ethernet devices (e.g. PCs or camera systems)
> PROFINET supervisor in PROFINET networks
> Network load limit according to PROFINET guidelines

Optimized for Use by Maintenance Engineers

> Designed for network acceptance testing, continuous monitoring, troubleshooting
> Easy and intuitive handling and operation
> Fault identification with intelligent troubleshooting assistance
> Seamless integration with TH SCOPE diagnostics software

Technical Data

Funktionalität	• Network detection and data collection (active/passive for PROFINET networks) • Basic monitoring • Web-based configuration • Alarm notification in case of fault
Supported Operating Systems	Windows 7 (32 Bit and 64 Bit), Windows 8, Windows Server 2008, Windows Server 2012

Scope of Delivery

Software	TH LINK PC Industrial Ethernet
Documentation	Installation Manual, Release Note (by download)

Order Numbers

LRA-JY-003028	TH LINK PC Industrial Ethernet (software key)
LRL-JY-003029	TH LINK PC Industrial Ethernet (hardware key)

Additional Products and Services

LRA-JY-003024	TH SCOPE (software key)
LRL-JY-003025	TH SCOPE (hardware key)
GDA-JA-003034	TH LINK PROFINET
GDA-JY-003037	TH LINK Industrial Ethernet
TRA-PN-TECH	Training “PROFINET Technology”
TRA-PN-CERTENG	Training “PROFINET Commissioning and Troubleshooting”

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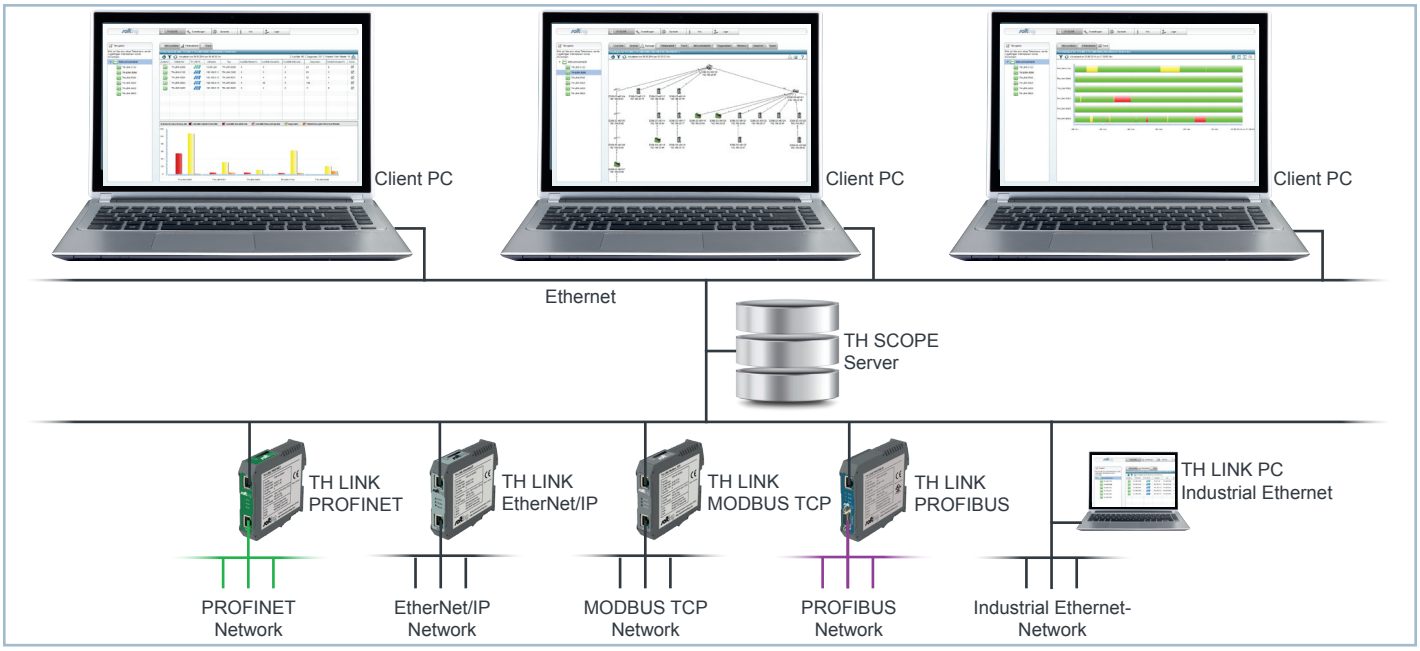
TH SCOPE

Powerful, Efficient Diagnostics for Industrial Networks

The TH SCOPE software product provides powerful industrial network diagnostics for plant operators and maintenance engineers. TH SCOPE is an all-in-one, easy-to-use solution for continuous monitoring, acceptance testing and troubleshooting. Designed for use with TH LINK components, the product supports the PROFIBUS, PROFINET, EtherNet/IP and Modbus TCP protocols.



Versatile Solution for a Wide Variety of Diagnostics Applications

> Network commissioning, acceptance testing
> Stationary operation for continuous monitoring
> Fault localization and identification in case of failure

Comprehensive Representation and Analysis of Diagnostic Data

> Data on network communication (e.g. load, error statistics)
> Data from network configuration (e.g. device names, firmware versions, topology)
> Diagnostic messages (network and device diagnostics)
> Data collection also from standard Ethernet devices (e.g. PCs or camera systems)

Optimized for Maintenance Users

> Easy and intuitive handling and operation
> No expert knowledge of IT or networks required
> Support of various network protocols (PROFIBUS, PROFINET, EtherNet/IP, Modbus TCP)

Flexible Integration into Existing Systems and Processes

> Integration of network data into monitoring tools and supervisory control systems via SNMP or OPC
> Export of all diagnostic data, support of further processing in applications such as Excel
> Web-based access, local or remote

Technical Data

Functionality	• Network overview with network and device status plus diagnostic messages with troubleshooting recommendations • Analysis of device logs • Live list, statistics, inventory • Topology and trend analysis • Automatic e-mail notification in case of fault • Reference comparison • Acceptance measurements and acceptance reports • Data export via Excel
Supported Protocols	PROFIBUS, PROFINET, EtherNet/IP, Modbus TCP
Interfaces	• SNMP Agent • OPC Classic DA Server
System Requirements	• Web browser with Adobe Flash Player 10.0 or higher • Adobe Reader 8 or higher for reading the documentation and for printing the topology
Supported Operating Systems	Windows 7 (32 Bit and 64 Bit), Windows 8, Windows Server 2008, Windows Server 2012
Network Access	Data collection through TH LINK (PROFIBUS, PROFINET, EtherNet/IP, Modbus TCP and Industrial Ethernet)
Demo Version	Full TH SCOPE functionality can be used for free for 30 days after installation
Licensing	Via software or hardware key

Scope of Delivery

Software	TH SCOPE (by download from Softing's website http://industrial.softing.com)
License	Software or hardware key
Documentation	Installation Manual, User Manual, Release Note

Order Numbers

LRA-JY-003024	TH SCOPE (software key)
LRL-JY-003025	TH SCOPE (hardware key)

Additional Products and Services

GEA-JN-003006	TH LINK PROFIBUS
GDA-JA-003034	TH LINK PROFINET
GDA-JC-003035	TH LINK EtherNet/IP
GDA-JE-003036	TH LINK Modbus TCP
GDA-JY-003037	TH LINK Industrial Ethernet
LRA-JY-003028	TH LINK PC Industrial Ethernet
TRA-PB-TECH	Training "PROFIBUS – Technology"
TRA-PB-TS	Training "PROFIBUS Troubleshooting"
TRA-PN-TECH	Training "PROFINET Technology"
TRA-PN-CERTENG	Training "PROFINET Commissioning and Troubleshooting"

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